

Fluorescence study on the interaction of PAMAM G3.5 dendrimer, copper ions, and dendrimer-copper complex with human serum albumin (HSA).

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Dendrimers are new, highly branched polymers. Their specific structure gives them an ability to interact with many different molecules, also with metal ions. The interactions between dendrimer, copper ions and dendrimer-copper complex with human serum albumin were investigated using fluorescence and dialysis methods. The results demonstrate that relatively high number of copper ions which can be bound per single molecule of G3.5 PAMAM dendrimer compare with some well known metal chelators (EDTA, BAL) allow to conclude that this generation can be an efficient chelator for Cu^{2+} ions in water solution and play a role in environment protection to remove these metal from aqueous reservoirs. On the other hand, G3.5 dendrimers rather cannot protect the human serum albumin before a destructive influence of copper on the protein. What is more the dendrimer – copper complex generally stronger influence on the structure of human serum albumin compared to the alone copper ions.